

Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH)
according to Regulation (EU) 2015/830

FEYCOLOR®

Article No.: 1-4460
Print date: 21.11.2018
Version: 2.9

RELAFLOOR 4460 2K PU
Revision date: 24.10.2018
Issue date: 11.10.2018

999998 EN
Page 1 / 9

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. product identifiers

Article No. (manufacturer/supplier) 1-4460
Identification of the substance or mixture RELAFLOOR 4460 2K PU
Versiegelung klar, hart
MV: 3:1 mit Härter 4460

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses:

Floor coating
Application in accordance with instructions in associated technical data sheet!

1.3. Details of the supplier of the safety data sheet

manufacturer

FEYCOLOR GmbH
Maxhuettenstraße 6
93055 Regensburg

Telephone: 0049 (0)941/60 49 7-0
Telefax: 0049 (0)941/60 49 7-30
E-mail info@feycolor.com
Website: www.feycolor.com

Dept. responsible for information:

Department for dangerous goods 0049 (0)941/60 49 7-0
E-mail (competent person) sd@feycolor.com

1.4. Emergency telephone number

Emergency telephone number +49 (0) 700 24 11 21 12 (FCM)
Österreichische Vergiftungsinformationszentrale +43 (0) 1406 43 43

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [CLP]

The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP].

Flam. Liq. 3 / H226	Flammable liquids	Flammable liquid and vapour.
Skin Sens. 1 / H317	Respiratory or skin sensitisation	May cause an allergic skin reaction.
Aquatic Chronic 3 / H412	Hazardous to the aquatic environment	Harmful to aquatic life with long lasting effects.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms



Warning

Hazard statements

H226 Flammable liquid and vapour.
H317 May cause an allergic skin reaction.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P241 Use explosion-proof electrical equipment.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves and eye/face protection.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P308 + P313 IF exposed or concerned: Get medical advice/attention.
P403 + P235 Store in a well-ventilated place. Keep cool.
P501 Dispose of contents/container to industrial incineration plant.

Hazard components for labelling

bis(1,2,2,6,6-pentamethyl-4-piperidyl)sebacate
Methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate

Supplemental Hazard information (EU)

Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH)
according to Regulation (EU) 2015/830

FEYCOLOR®

Article No.: 1-4460
Print date: 21.11.2018
Version: 2.9

RELAFLOOR 4460 2K PU
Revision date: 24.10.2018
Issue date: 11.10.2018

999998 EN
Page 2 / 9

not applicable

2.3. Other hazards

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

SECTION 3: Composition / information on ingredients

3.2. Mixtures

Product description / chemical characterization

Description preparation of polyester resin in solvent

Hazardous ingredients

Classification according to Regulation (EC) No 1272/2008 [CLP]

EC No.	REACH No.	Wt %
CAS No.	Chemical name	
INDEX No.	classification // Remark	
203-603-9	01-2119475791-29	
108-65-6	2-methoxy-1-methylethyl acetate	25 < 50
607-195-00-7	Flam. Liq. 3 H226	
215-535-7	01-2119488216-32	
1330-20-7	Xylene	5 < 10
601-022-00-9	Acute Tox. 4 H312 / Acute Tox. 4 H332 / Skin Irrit. 2 H315 / Flam. Liq. 3 H226	
202-849-4		
100-41-4	ethylbenzene	1 < 5
601-023-00-4	Flam. Liq. 2 H225 / Acute Tox. 4 H332 / Asp. Tox. 1 H304 / STOT RE 2 H373 / Aquatic Chronic 3 H412	
255-437-1	01-2119491304-40	
41556-26-7	bis(1,2,2,6,6-pentamethyl-4-piperidyl)sebacate	1 < 5
	Skin Sens. 1 H317 / Aquatic Acute 1 H400 / Aquatic Chronic 1 H410	
286-272-3		
85203-81-2	2-Ethylhexanoic acid, zinc salt, basic	0,3 < 0,5
	Repr. 2 H361	
280-060-4		
82919-37-7	Methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate	0,3 < 0,5
	Skin Sens. 1 H317 / Aquatic Acute 1 H400 / Aquatic Chronic 1 H410	

Additional information

Full text of classification: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness give nothing by mouth, place in recovery position and seek medical advice.

In case of inhalation

Remove casualty to fresh air and keep warm and at rest. In case of irregular breathing or respiratory arrest provide artificial respiration.

Following skin contact

Take off immediately all contaminated clothing. After contact with skin, wash immediately with plenty of water and soap. Do not use solvents or thinners.

After eye contact

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical advice immediately.

After ingestion

If swallowed, rinse mouth with water (only if the person is conscious). Seek medical advice immediately. Keep victim calm. Do NOT induce vomiting.

4.2. Most important symptoms and effects, both acute and delayed

In all cases of doubt, or when symptoms persist, seek medical advice.

Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH)
according to Regulation (EU) 2015/830

FEYCOLOR®

Article No.: 1-4460
Print date: 21.11.2018
Version: 2.9

RELAFLOOR 4460 2K PU
Revision date: 24.10.2018
Issue date: 11.10.2018

999998 EN
Page 3 / 9

- 4.3. **Indication of any immediate medical attention and special treatment needed**
No special measures are necessary.

SECTION 5: Firefighting measures

5.1. **Extinguishing media**

Suitable extinguishing media:

alcohol resistant foam, carbon dioxide, Powder, spray mist, (water)

Extinguishing media which must not be used for safety reasons:

strong water jet

5.2. **Special hazards arising from the substance or mixture**

Dense black smoke occurs during fire. Inhaling hazardous decomposing products can cause serious health damage.

5.3. **Advice for firefighters**

Provide a conveniently located respiratory protective device. Cool closed containers that are near the source of the fire. Do not allow water used to extinguish fire to enter drains, ground or waterways.

SECTION 6: Accidental release measures

6.1. **Personal precautions, protective equipment and emergency procedures**

Keep away from sources of ignition. Ventilate affected area. Do not breathe vapours.

6.2. **Environmental precautions**

Do not allow to enter into surface water or drains. If the product contaminates lakes, rivers or sewages, inform competent authorities in accordance with local regulations.

6.3. **Methods and material for containment and cleaning up**

Isolate leaked material using non-flammable absorption agent (e.g. sand, earth, vermiculit, diatomaceous earth) and collect it for disposal in appropriate containers in accordance with the local regulations (see section 13). Clean using cleansing agents. Do not use solvents.

6.4. **Reference to other sections**

Observe protective provisions (see section 7 and 8).

SECTION 7: Handling and storage

7.1. **Precautions for safe handling**

Advices on safe handling

Avoid formation of flammable and explosive vapour concentrations in the air and exceeding the exposure limit values. Only use the material in places where open light, fire and other flammable sources can be kept away. Electrical equipment must be protected meeting the accepted standard. Product may become electrostatically charged. Provide earthing of containers, equipment, pumps and ventilation facilities. Anti-static clothing including shoes are recommended. Floors must be electrically conductive. Keep away from heat sources, sparks and open flames. Use only spark proof tools. Avoid contact with skin, eyes and clothes. Do not inhale dusts, particulates and spray mist when using this preparation. Avoid respiration of swarf. When using do not eat, drink or smoke. Personal protection equipment: refer to section 8. Do not empty containers with pressure - no pressure vessel! Always keep in containers that correspond to the material of the original container. Follow the legal protection and safety regulations.

Precautions against fire and explosion:

Vapours are heavier than air. Vapours form explosive mixtures with air.

7.2. **Conditions for safe storage, including any incompatibilities**

Requirements for storage rooms and vessels

Storage in accordance with the Ordinance on Industrial Safety and Health (BetrSiVO). Keep container tightly closed. Do not empty containers with pressure - no pressure vessel! Smoking is forbidden. Access only for authorised persons. Store carefully closed containers upright to prevent any leaks. Soils have to conform to the "Guidelines for avoidance of ignition hazards due to electrostatic charges (TRBS 2153)".

Hints on joint storage

Keep away from strongly acidic and alkaline materials as well as oxidizers.

Further information on storage conditions

Take care of instructions on label. Store in a well-ventilated and dry room at temperatures between 15 °C and 30 °C. Protect from heat and direct sunlight. Keep container tightly closed. Remove all sources of ignition. Smoking is forbidden. Access only for authorised persons. Store carefully closed containers upright to prevent any leaks.

7.3. **Specific end use(s)**

Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH)
according to Regulation (EU) 2015/830

FEYCOLOR®

Article No.: 1-4460 RELAFLOOR 4460 2K PU
Print date: 21.11.2018 Revision date: 24.10.2018
Version: 2.9 Issue date: 11.10.2018

999998 EN
Page 4 / 9

Observe technical data sheet.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limit values:

2-methoxy-1-methylethyl acetate

INDEX No. 607-195-00-7 / EC No. 203-603-9 / CAS No. 108-65-6

WEL, TWA: 274 mg/m³; 50 ppm

WEL, STEL: 548 mg/m³; 100 ppm

Xylene

INDEX No. 601-022-00-9 / EC No. 215-535-7 / CAS No. 1330-20-7

WEL, TWA: 220 mg/m³; 50 ppm

WEL, STEL: 441 mg/m³; 100 ppm

BMGV, TWA: 650 mmol/mol creatinine

Remark: methyl hippuric acid; urine; end of exposure or end of shift

ethylbenzene

INDEX No. 601-023-00-4 / EC No. 202-849-4 / CAS No. 100-41-4

WEL, TWA: 441 mg/m³; 100 ppm

WEL, STEL: 552 mg/m³; 125 ppm

Remark: (May be absorbed through the skin.)

Additional information

TWA : long-term occupational exposure limit value

STEL : short-term occupational exposure limit value

Ceiling : peak limitation

8.2. Exposure controls

Provide good ventilation. This can be achieved with local or room suction. If this should not be sufficient to keep aerosol and solvent vapour concentration below the exposure limit values, a suitable respiratory protection must be used.

Occupational exposure controls

Respiratory protection

If concentration of solvents is beyond the occupational exposure limit values, approved and suitable respiratory protection must be used. Observe the wear time limits according GefStoffV in combination with the rules for using respiratory protection apparatus (BGR 190). Use only respiratory protection equipment with CE-symbol including four digit test number.

Hand protection

For prolonged or repeated handling the following glove material must be used: NBR (Nitrile rubber)

Thickness of the glove material 0,7 mm; Breakthrough time (maximum wearing time) 60 min.

Observe the instructions and details for use, storage, maintenance and replacement provided by the protective glove manufacturer. Penetration time of glove material depending on intensity and duration of exposure to skin. Recommended glove articles DIN EN 374

Barrier creams can help protecting exposed skin areas. In no case should they be used after contact.

Eye protection

Wear closely fitting protective glasses in case of splashes.

Protective clothing

Wear antistatic clothing of natural fibers (cotton) or heat resistant synthetic fibers.

Protective measures

After contact clean skin thoroughly with water and soap or use appropriate cleanser.

Environmental exposure controls

Do not allow to enter into surface water or drains. See chapter 7. No additional measures necessary.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance:

Physical state:

Liquid

Colour:

refer to label

Odour:

characteristic

Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH)
according to Regulation (EU) 2015/830

FEYCOLOR®

Article No.: 1-4460
Print date: 21.11.2018
Version: 2.9

RELAFLOOR 4460 2K PU
Revision date: 24.10.2018
Issue date: 11.10.2018

999998 EN
Page 5 / 9

Odour threshold:	not applicable
pH at20 °C:	n.a.
Melting point/freezing point:	not applicable
Initial boiling point and boiling range:	98 °C Source: butan-2-ol
Flash point:	24 °C
Evaporation rate:	not applicable
Flammability (solid, gas):	
Burning time (s):	not applicable
Upper/lower flammability or explosive limits:	
Lower explosion limit:	1,43 Vol-%
Upper explosion limit:	12,7 Vol-% Source: Dowanol PGDA
Vapour pressure at20 °C:	2,8934 mbar
Vapour density:	not applicable
Relative density:	
Density at20 °C:	1,03 g/cm³
Solubility(ies):	
Water solubility (g/L) at20 °C:	partially soluble
Partition coefficient: n-octanol/water:	see section 12
Auto-ignition temperature:	272 °C Source: Harzlösung eines ungesättigten Polyesters
Decomposition temperature:	not applicable
Viscosity at20 °C:	> 40 s 4 mm Method: DIN 53211
Explosive properties:	not applicable
Oxidising properties:	not applicable
9.2. Other information	
Solid content (%):	39 Wt %
solvent content:	
Organic solvents:	61,34 Wt %
Water:	0,00 Wt %
Solvent separation test (%):	< 3 Wt % (ADR/RID)

SECTION 10: Stability and reactivity

- 10.1. **Reactivity**
No information available.
- 10.2. **Chemical stability**
Stable when applying the recommended regulations for storage and handling. Further information on correct storage: refer to section 7.
- 10.3. **Possibility of hazardous reactions**
Keep away from strong acids, strong bases and strong oxidizing agents to avoid exothermic reactions.
- 10.4. **Conditions to avoid**
Hazardous decomposition byproducts may form with exposure to high temperatures.
- 10.5. **Incompatible materials**
No information available.
- 10.6. **Hazardous decomposition products**
Hazardous decomposition byproducts may form with exposure to high temperatures, e.g.: carbon dioxide, carbon monoxide, smoke, nitrogen oxides.

SECTION 11: Toxicological information

Classification according to Regulation (EC) No 1272/2008 [CLP]
No data on preparation itself available.

Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH)
according to Regulation (EU) 2015/830

FEYCOLOR®

Article No.: 1-4460 RELAFLOOR 4460 2K PU
Print date: 21.11.2018 Revision date: 24.10.2018
Version: 2.9 Issue date: 11.10.2018

999998 EN
Page 6 / 9

11.1. Information on toxicological effects

Acute toxicity, calculated:

ATEmix calculated, dermal: > 5000 mg/kg
ATEmix calculated, inhalative (vapours): > 20 mg/l

Acute toxicity

2-methoxy-1-methylethyl acetate
dermal, LD50, Rabbit: > 5000 mg/kg
inhalative (dust and mist), LC50, Rat: 35,7 mg/l (4 h)
inhalative (vapours), LC50, Rat: > 23,5 mg/kg (6 h)

skin corrosion/irritation; Serious eye damage/eye irritation

Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation

bis(1,2,2,6,6-pentamethyl-4-piperidyl)sebacate
Skin:
May cause an allergic skin reaction.

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

Based on available data, the classification criteria are not met.

Specific target organ toxicity

Based on available data, the classification criteria are not met.

Practical experience/human evidence

Other observations:

Inhaling of solvent components above the MWC-value can lead to health damage, e.g. irritation of the mucous membrane and respiratory organs, as well as damage to the liver, kidneys and the central nerve system. Indications for this are: headache, dizziness, fatigue, amyosthenia, drowsiness, in serious cases: unconsciousness. Solvents may cause some of the aforementioned effects through skin resorption. Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin resulting in non-allergic contact dermatitis and/or absorption through skin. Splashing may cause eye irritation and reversible damage.

Overall Assessment on CMR properties

The ingredients in this mixture do not meet the criteria for classification as CMR category 1A or 1B according to CLP.

Remark

There is no information available on the preparation itself .

SECTION 12: Ecological information

overall evaluation

Classification according to Regulation (EC) No 1272/2008 [CLP]

There is no information available on the preparation itself .

Do not allow to enter into surface water or drains.

12.1. Toxicity

2-methoxy-1-methylethyl acetate
Fish toxicity, LC50, Oncorhynchus mykiss (Rainbow trout): > 134 mg/l (96 h)
Daphnia toxicity, EC50, Daphnia magna (Big water flea): 408 mg/l (48 h)
Fish toxicity, LC50:: 161 mg/l (96 h)

Long-term Ecotoxicity

2-methoxy-1-methylethyl acetate
Fish toxicity, NOEC, Oryzias latipes (Ricefish): 47,5 mg/l (14 d)
Daphnia toxicity, NOEC, Daphnia magna (Big water flea): > 100 mg/l (21 h)

12.2. Persistence and degradability

No information available.

12.3. Bioaccumulative potential

2-methoxy-1-methylethyl acetate
Partition coefficient: n-octanol/water: 1,2

Bioconcentration factor (BCF)

Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH)
according to Regulation (EU) 2015/830

FEYCOLOR®

Article No.: 1-4460
Print date: 21.11.2018
Version: 2.9

RELAFLOOR 4460 2K PU
Revision date: 24.10.2018
Issue date: 11.10.2018

999998 EN
Page 7 / 9

No information available.

12.4. Mobility in soil

No information available.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6. Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Appropriate disposal / Product Recommendation

Do not allow to enter into surface water or drains. This material and its container must be disposed of in a safe way. Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.

List of proposed waste codes/waste designations in accordance with EWC

080111 Waste paint and varnish containing organic solvents or other dangerous substances

packaging

Recommendation

Non-contaminated packages may be recycled. Vessels not properly emptied are special waste.

SECTION 14: Transport information

14.1. UN number

UN 1263

14.2. UN proper shipping name

Land transport (ADR/RID): Paint
Sea transport (IMDG): PAINT
Air transport (ICAO-TI / IATA-DGR): Paint

14.3. Transport hazard class(es)

3

14.4. Packing group

III

14.5. Environmental hazards

Land transport (ADR/RID) not applicable
Marine pollutant not applicable

14.6. Special precautions for user

Transport always in closed, upright and safe containers. Make sure that persons transporting the product know what to do in case of an accident or leakage.

Advices on safe handling: see parts 6 - 8

Further information

Land transport (ADR/RID)

tunnel restriction code D/E

Sea transport (IMDG)

EmS-No. F-E, S-E

Air transport (ICAO-TI / IATA-DGR)

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU legislation

Directive 2010/75/EU on industrial emissions

Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH)
according to Regulation (EU) 2015/830

FEYCOLOR®

Article No.: 1-4460
 Print date: 21.11.2018
 Version: 2.9

RELAFLOOR 4460 2K PU
 Revision date: 24.10.2018
 Issue date: 11.10.2018

999998 EN
 Page 8 / 9

VOC-value (in g/L): 631

National regulations

Restrictions of occupation

Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.
 Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC).

Other regulations, restrictions and prohibition regulations

15.2. **Chemical Safety Assessment**

For the following substances of this preparation a chemical safety assessment has been carried out:

EC No. CAS No.	Chemical name	REACH No.
203-603-9 108-65-6	2-methoxy-1-methylethyl acetate	01-2119475791-29
215-535-7 1330-20-7	Xylene	01-2119488216-32
202-849-4 100-41-4	ethylbenzene	
255-437-1 41556-26-7	bis(1,2,2,6,6-pentamethyl-4-piperidyl)sebacate	01-2119491304-40

SECTION 16: Other information

Full text of classification in section 3:

Flam. Liq. 3 / H226	Flammable liquids	Flammable liquid and vapour.
Acute Tox. 4 / H312	Acute toxicity (dermal)	Harmful in contact with skin.
Acute Tox. 4 / H332	Acute toxicity (inhalative)	Harmful if inhaled.
Skin Irrit. 2 / H315	skin corrosion/irritation	Causes skin irritation.
Flam. Liq. 2 / H225	Flammable liquids	Highly flammable liquid and vapour.
Asp. Tox. 1 / H304	Aspiration hazard	May be fatal if swallowed and enters airways.
STOT RE 2 / H373	Specific target organ toxicity (repeated exposure)	May cause damage to organs (or state all organs affected, if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard).
Aquatic Chronic 3 / H412	Hazardous to the aquatic environment	Harmful to aquatic life with long lasting effects.
Skin Sens. 1 / H317	Respiratory or skin sensitisation	May cause an allergic skin reaction.
Aquatic Acute 1 / H400	Hazardous to the aquatic environment	Very toxic to aquatic organisms.
Aquatic Chronic 1 / H410	Hazardous to the aquatic environment	Very toxic to aquatic life with long lasting effects.
Repr. 2 / H361	Reproductive toxicity	Suspected of damaging the unborn child.

Abbreviations and acronyms

ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
AGW (WEL)	Occupational Exposure Limit Value
CAS	Chemicals Abstract Service
CLP	Classification, Labelling and Packaging
CMR	Carcinogenic, Mutagenic and Reprotoxic
DNEL	Derived No-Effect Level
IATA-DGR	International Air Transport Association – Dangerous Goods Regulations
ICAO-TI	International Civil Aviation Organization Technical Instructions for the Safe Transport of Dangerous Goods by Air
IMDG Code	International Maritime Code for Dangerous Goods
PBT	persistent, bioaccumulative, toxic
PNEC	Predicted No Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport international ferroviaire de marchandises Dangereuses (Regulations concerning the International Carriage of Dangerous Goods by Rail)
UN	United Nations
LC	Lethal Concentration
LD	Lethal Dose
VOC	Volatile Organic Compounds

Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH)
according to Regulation (EU) 2015/830

FEYCOLOR®

Article No.: 1-4460 RELAFLOOR 4460 2K PU
Print date: 21.11.2018 Revision date: 24.10.2018
Version: 2.9 Issue date: 11.10.2018

999998 EN
Page 9 / 9

vPvB very persistent and very bioaccumulative

Further information

Classification according to Regulation (EC) No 1272/2008 [CLP]

The information supplied on this safety data sheet complies with our current level of knowledge as well as with national and EU regulations. Without written approval, the product must not be used for purposes different from those mentioned in chapter 1. It is always the user's duty to take any necessary measures for meeting the requirements laid down by local rules and regulations. The details in this safety data sheet describe the safety requirements of our product and are not to be regarded as guaranteed attributes of the product.